

## Abstract of the Disclosure

To provide a wire excellent in electrical characteristics or in mechanical characteristics. A wire is constructed at least by a carbon nanotube structure layer (1) in which plural carbon nanotubes mutually cross-link to configure a mesh structure on the surface of a substrate (2). A method of manufacturing the wire includes: an applying step of applying to the surface of the substrate (2) a liquid solution containing a carbon nanotube having a functional group; and a step of curing the liquid solution after the application. An electromagnet scarcely causing a loss is formed using the wire.